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Manuela Ferreira<sup>1</sup>, Ana Paula Cardoso<sup>2</sup>, Raquel Guiné<sup>3</sup>, José Luís Abrantes<sup>4</sup>

<sup>1</sup> Polytechnic of Viseu, ESSV, UICISA: E, Portugal

<sup>2</sup> Polytechnic of Viseu, ESEV, CI&DEI, Portugal

<sup>3</sup> Polytechnic of Viseu, ESAV, CERNAS/IPV, Portugal

<sup>4</sup> Polytechnic of Viseu, ESTGV, CISED Portugal

The special edition of the Millennium Journal publishes the abstracts of the plenary sessions and communications (oral and poster) presented at the "International Conference on Multidisciplinary Research - CMR", which took place in a hybrid format, and whose program was developed under four thematic lines: education, technologies, health and agrarian sciences, corresponding to the central areas of activity of the Polytechnic of Viseu's R&D Units.

Inclusive education and information and communication technologies were the themes of the invited plenary talks by José Fernández Batanero (University of Seville) and Bárbara Mariana Gutiérrez Pérez (University of Salamanca), in the area of Education. "Literacy and Mental Health in Higher Education Students" and "Promotion of Health, Literacy and Lifestyles in Higher Education" were the titles of the invited interventions by Carlos Sequeira (School of Nursing of Porto, Cintesis) and Ana Rita Pedro (National School of Public Health). Agricultural Sciences and Technologies were the thematic lines of the second day of the Conference. Invited talks in the areas of food science and technology, given by Elena Bartkiene (Lithuania University of Health Sciences), and sustainable agriculture, by António Dinis Ferreira (Cernas – Polytechnic Institute of Coimbra), were the starting point for the debate that took place during the morning. Barry Feeney (Dublin Institute of Technology) and Ana Lúcia Ferreira (Veolia Water Technologies Techno Center Netherlands B.V.) were the invited speakers who, in the afternoon, spoke about the connection between polytechnic institutes and companies and the treatment of industrial water, respectively.

Over the two days, the meeting promoted, simultaneously, the presentation of communications, oral and digital, in parallel sessions, resulting from a broad "open call" with the participation of researchers from 11 countries (Brazil, Cape Verde, Canada, Spain, United States of America, Ireland, Lebanon, Lithuania, Poland, Romania, Sri Lanka).

This Congress provided an opportunity for learning and scientific growth, through the dissemination and sharing of science, having an expected impact on the scientific community and society in general.

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## SITE SUITABILITY EVALUATION FOR URBAN DEVELOPMENT USING GIS AND ANALYTIC HIERARCHY PROCESS

Luís Quinta-Nova<sup>1</sup>

<sup>1</sup> Instituto Politécnico de Castelo Branco, Portugal

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**Presenting author:** Luís Quinta-Nova | Inova@ipcb.pt

Urban growth is a continuous process of occupation of space leading to significant concentrations of population and economical activities. Urban land use suitability is influenced by a set of environmental, economic, and social factors, such as ecological values, legal constraints, population growth, the degree of economic development, as well as the integrated planning processes in the territory. To properly zoning the future urban areas, is crucial to use adequate cartography of the area available for urban expansion of the city. It is, therefore, essential to proceed with the analysis of the geographic information including geomorphology, soils, transport network, hydrography, restrictions of public utility and soil cover.

In this work it was intended to evaluate the influence of biophysical and legal constraints on the urban growth, using a set of spatial analysis techniques. The biophysical factors analyzed were classified into three levels of factor-use compatibility, allowing the detection of the most suitable areas for the urban expansion of the city, using the spatial analysis methods provided by ArcGIS 10.8 software and the Analytical Hierarchy Process (AHP).

A pairwise comparison between factors was performed to calculate their relative weights. As a result of the AHP analysis a suitability map was produced. This decision support GIS method could be useful for local development authorities in the aim of urban planning and management.

**Keywords:** Urban expansion; Land planning; GIS; AHP; Sustainability